

EPA Official Record

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Copy To: Joseph.Coyne@state.ma.us; Bob Cianciarulo/R1/USEPA/US@EPA

Delivered Date: 08/17/2010 09:59 AM EDT

Subject: Fw: Risk calculation for the residential drinking water sample with BEHP data hit

Rick -

Per my voicemail.... another Olin residential well issue. BEHP was detected at 9.9 ug/l. The federal MCL is 6.0 ug/l. Total chromium was also detected in this same well at 10 ug/l. The federal MCL is 100 ug/l. Nobis (Cindy) ran cancer and non-cancer life time risk numbers... the driver is her assumption of hex-chromium which results in a cancer risk of 2E-04 (see attached file). I have asked Nobis to re-run the numbers assuming total chromium, which should put the results back within the acceptable risk range.

Do you agree with the calcs?

What's your position on the total chromium vs hex-chromium assumption? Mine is to assume total unless verified as hex.

Thanks -
Jim

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----- Forwarded by Jim Dilorenzo/R1/USEPA/US on 08/17/2010 09:52 AM -----

From: "Heather Ford" <HFord@nobisengineering.com>

To: Jim Dilorenzo/R1/USEPA/US@EPA

Date: 08/17/2010 06:44 AM

Subject: Risk calculation for the residential drinking water sample with BEHP data hit

Jim - see Cindy's email below and the attachment with her risk calculations. Heather

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-----Original Message-----

From: Cynthia Woods [mailto:cwoods@avatarenviro.com]
Sent: Monday, August 16, 2010 6:01 PM
To: Heather Ford
Cc: David Lang
Subject: FW: Olin BEHP data hit

Hi Heather,
Attached are the requested calculations. I have provided both hazard index calculations for the child resident and cancer risks for 70 year residential exposure at the home with 9.9 BEHP. They also had di-n-butyl phthalate, benzoic acid, chromium, sulfate, and nitrate as N detected. There are no tox values for sulfate and while there is a non-cancer reference dose for nitrate, I wasn't sure of its applicability to what we have measured.
Because the speciation of chromium is not specified and I know we have some chromium VI in on-site soils (I do not believe we have any chromium speciated data from site groundwater), I used the more conservative chromium VI tox values.
None of the 4 contaminants evaluated is considered volatile, so I did not calculate risks via the inhalation pathway. Only chromium and BEHP are carcinogenic and chromium acts via the mutagenic mode, but BEHP does not.
Each of the 4 chemicals has an RfD so they are all evaluated for non-cancer hazards.

As you will see, hazard indices are below 1; however, cancer risks are above the EPA target of $1E-4$, with chromium as the principal driver of that risk. Chromium III is not considered carcinogenic at all, so if the measured chromium is actually all trivalent, most of the carcinogenic risks go away and the HI would be lower still.

Cindy



70 yr risk 3 paths -private well new.xls